

### Claims

- 205 1. A method for safely coupling an external voltage network to an operating voltage network, in particular of a motor vehicle,  
in which at least one controllable switch ( $Q_2$ ) is arranged between the  
operating voltage network (BN) and a connecting terminal (VK), the at  
least one controllable switch is connected to a control unit (SG), the  
210 connecting terminal (VK) is designed for connection of the external  
voltage network (FN) and the method comprises the following steps:
- measuring the voltage at the connecting terminal (VK),
  - 215 – examining whether the measurement voltage is not below a lower  
threshold value and not in excess of an upper threshold value,
  - closing the controllable switch ( $Q_2$ ) if the measurement voltage is  
within the permissible range,
  - 220 – measuring the current flowing between the connecting terminal  
(VK) and the operating voltage network (BN),
  - examining whether the current is not below a lower threshold value,
  - 225 – opening the at least one controllable switch ( $Q_2$ ) if the current is  
outside the permissible range.
- 230 2. A method according to claim 1,  
characterized in that the method steps are carried out with activated  
ignition lock ( $Q_1$ ) only.
- 235 3. A method according to claim 1,  
characterized in that the controllable switch ( $Q_2$ ) is opened when the  
current between the connecting terminal (VK) and the operating voltage  
network (BN) is in excess of an upper threshold value.

4. A method according to claim 1,  
characterized in that, after opening of the controllable switch ( $Q_2$ ), this  
240 state is maintained until the voltage at the connecting terminal (VK)  
drops to zero or falls below a lower threshold value.
5. A method according to claim 1,  
characterized in that the measurement of the voltage at the connecting  
245 terminal (VK) is carried out permanently during the entire process.
6. A method according to claim 1,  
characterized in that the results of the measurement result examination  
steps are output via a display unit (AE).  
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7. A method according to claim 1,  
characterized in that, after opening of the at least one controllable  
switch ( $Q_2$ ), said switch ( $Q_2$ ) is closed again at regular intervals in order  
to determine whether the operational state that caused opening of said  
255 switch ( $Q_2$ ) is still present.
8. A circuit arrangement for carrying out the method according to any of  
claims 1 to 7.
- 260 9. A circuit arrangement according to claim 8,  
characterized in that the controllable switch ( $Q_2$ ) is a relay.
10. A circuit arrangement according to claim 8 or 9,  
characterized in that the connecting terminal (VK) is covered by a cap  
265 (AK) and the latter is connected to a switch ( $Q_3$ ) such that the switching  
state of said switch ( $Q_3$ ) changes upon removal of the cap from the  
connecting terminal (VK).
11. A circuit arrangement according to any of claims 8 to 10,

270 characterized in that the operating voltage network (BN) is the supply network of a first motor vehicle (A) and that the external voltage network (FN) is the supply network of a second motor vehicle (B), or a charging device.

275 12. A circuit arrangement according to claim 8, characterized in that a measurement resistor ( $R_m$ ) is connected between the terminal means of the connecting terminal (VK).